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STMicroelectronics Inc. c/o WOLF, GREENFIELD & SACKS, P.C. 600 Atlantic Avenue BOSTON, MA 02210-2206			EXAMINER KIM, HEE-YONG	
			ART UNIT 2482	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

10/580,762

Applicant(s)

BOLTON ET AL.

Examiner

HEE-YONG KIM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 and 49-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 and 49-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in reply to Applicant's Response dated April 5, 2011.
2. **Claims 31 and 49** have been amended.
3. **Claims 1-47, and 49-54** are pending.

Response to Arguments

4. Rejection of **claim 49** under 35 U.S.C. 101, second paragraph is withdrawn because the applicant's argument is persuasive that computer readable storage device does not have a non-transitory medium.
5. Regarding **claim 49**, applicant amended the claim as "Computer readable medium" which is disclosed neither in the specification nor in the original claims. Therefore, it is considered new matter. And also computer readable medium can include non-statutory class - transitory medium such as signal. Therefore, they are rejected under both 35 U.S.C. 112, second paragraph and 35 U.S.C. 101.
6. Regarding prior art rejection, applicant's arguments with respect to **claims 1-54** have been considered but they are not persuasive.
7. Regarding **claim 1**, applicant argues (pp.12-13) that Ryan does not disclose any picture level parameter words which comprises coding standard information, instead he discloses a picture layer of syntax. Examiner respectfully disagrees. Ryan discloses decoding picture level parameter words (Picture Decode parameters 218, Fig.2). Since

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the claim does not recite the specifics of the parameter content, examiner maintains that Ryan discloses this claim limitation.

8. Regarding the remaining pending claims, applicant argues (pp.13-14) that they are allowable because they have the above allowable claim limitation. Since examiner maintains the previous rejection, this argument is groundless.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1-11, 14-23, 27, 31-41, 43-45, 49, 51, and 53-54** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 5,646,688) in view of Ryan (US 6,263,019), hereafter referenced as Hashimoto and Ryan, respectively.

Regarding **claim 1**, Hashimoto discloses Video Decoder Architecture Using Separate Semiconductor Substrates. Specifically Hashimoto discloses A video decoding circuit (video data decoding system, Fig.1) comprising:
a first video data processor (first semiconductor substrate 12, Fig.1) ; a second video data processor (second semiconductor substrate 14, Fig.1); and a connection connecting (buses internal, col.2, line 40) said first video data processor and said second data processor; wherein said first video data processor is arranged to receive a first signal comprising encoded video data (encoded input, col.2, line 44), process said first signal to provide a second signal and output said second signal (motion vector and

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IDCT output, Fig.1), said first video data processor being arranged to process said first signal dependent on at least part (decoding motion vectors by parser 20 and dequantizing the quantized DCT coefficients by 22 and 24, Fig.1) of said received first signal, and said second video data processor comprising a predictor constructor (Motion compensation unit 26a, Fig.1), said second video data processor is arranged to receive at least a part of said second signal (motion vector and IDCT output, Fig.1), process said at least a part of said second signal (motion vector and IDCT output, Fig.1) to provide a third signal (I-picture, B-picture, and P-picture, Fig.1), and output said third signal (output, fig.1), said second and third signals comprising a decoded video image stream (motion vector, IDCT output, I-picture, B-picture, and P-picture, Fig.1); and said second video data processor is arranged to process said at least part of said second signal (motion vector and IDCT output, Fig.1) dependent on the format of the data received. However, Hashimoto is silent on wherein a part of said second signal comprises a picture level parameter word which comprises coding standard information, said coding standard information defining variations in the type of data.

In the analogous field of endeavor, Ryan discloses Variable Rate MPEG-2 Video Syntax Processor. Specifically Ryan discloses wherein a part of said second signal comprises a picture level parameter word (picture layer of syntax are parsed by Microprocessor, col.5 , line 46-48; Picture Decode parameters 218, Fig.2) which comprises coding standard information (MPEG 2 syntax, col.5, line 46-48), said coding standard information defining variations (Picture layer, slice and macroblock layer, col.5,

line 46-48) in the type of data, in order to provide information to decode slice and macroblock record in the MPEG standard video bitstream (col.5, line 49-52).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Hashimoto by specifically incorporating parsing picture level parameter into the Hashimoto first semiconductor substrate, in order to provide information to decode slice and macroblock record in the MPEG standard video bitstream. The Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, has all the features of claim 1.

Regarding **Claim 2**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses wherein said first video data processor is arranged to variable length decode (decode Huffman-encoding, col.3, line 15-16) said received first signal to produce a decoded first signal.

Regarding **Claim 3**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 2). In addition, Hashimoto discloses wherein said first video data processor is arranged to separate said first signal data into at least a first part and a second part, wherein said first part comprises at least one of:
pixel data (Input to Dequantization (22, Fig.1) when macroblock is intra type);
residual data (Input to Dequantization (22, Fig.1) when macroblock is inter type), and
wherein said second part comprises motion vector data (motion vector, Fig.1).

Regarding **Claim 4**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 3). In addition, Hashimoto discloses wherein said first video data

processor is arranged to inverse quantize (Dequantization 22, Fig.1) said first part of said first signal.

Regarding **Claim 5**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 3). In addition, Hashimoto discloses wherein said first video data processor is arranged to spatial domain transform (IDCT 24, Fig.1) said first part of said first signal.

Regarding **Claim 6**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 4). In addition, Hashimoto discloses wherein said first video data processor (first semiconductor substrate 12, Fig.1) is arranged to combine (examiner read it as combining two data output to feed them to the second semiconductor substrate as shown in Fig.1) said inverse quantized (output of Dequantization 22, Fig.1) first part (Input to Dequantization (22, Fig.1) of said first signal with said second part (Motion Vector, Fig.1) of said first signal.

Regarding **Claim 7**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses wherein said second video data processor is arranged (calculate motion compensated frame, col.4, line 38-40) to interpolate (averaging values for neighboring pixels, col.4, line 45-46) at least a first part (output of IDCT 24, Fig.1, which is image pixel data) of said second signal..

Regarding **Claim 8**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 7). In addition, Hashimoto discloses wherein said second video data processor is arranged (calculate motion compensated frame, col.4, line 38-40) to interpolate at least a first part (IDCT(24, Fig.1) output, which is an image pixel data) of

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said second signal using one of horizontal and vertical interpolation (averaging values for neighboring pixels, col.4, line 45-46).

Regarding **Claim 9**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 8). In addition, Hashimoto discloses further comprising a memory (input buffer 30 and 36, Fig.1), said second video data processor being arranged to store said interpolated part of said second signal in said memory.

Regarding **Claim 10**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 8). In addition, Hashimoto discloses wherein said second video data processor is arranged to interpolate said stored interpolated first part of said second signal using the other one of horizontal and vertical interpolation (it was well known in the art that when half pixel position is at the center of four surrounding pixels, it is interpolated in one direction (horizontally or vertically) first (horizontally for top and bottom, or vertically for left and right of half pixel position) and then interpolate (average) in the other direction).

Regarding **Claim 11**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 7). In addition, Hashimoto discloses wherein said second video data processor is arranged to combine (summation unit (42, fig.1) sum, col.4, line 39-43) said interpolated part (compensated frame, col.4, line 39-43) of said second signal and a further part (differential signal (IDCT output, Fig.1), col.4, line 39-43) of said second signal, wherein said interpolated part of said second signal comprises an estimated macro block (prediction, col.1, line 40-42), and said further part of said second signal comprises residual error data (differential data, col.1, line 40-42).

Regarding **Claim 14**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses wherein said connection comprises a bus (buses internal, col.2, line 40) connecting said first and second video data processors.

Regarding **Claim 15**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 14). In addition, Hashimoto discloses further comprising a memory device (Input Buffer 28, Fig.1), said memory device being connected to said bus (buses internal, col.2, line 40).

Regarding **Claim 16**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 15). In addition, Hashimoto discloses wherein said first video data processor has an output (IDCT (24, Fig.1) output) for outputting said second signal to said memory device (Input Buffer 28, Fig.1) via said bus.

Regarding **Claim 17**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 16). In addition, Hashimoto discloses wherein said second video data processor has an input (input to Input buffer 28, fig.1) for receiving said parts of said second signal from said memory device via said bus.

Regarding **Claim 18**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses wherein said connection comprises a data interconnect (8-bit buses, col.5, line 54-58) said data interconnect directly (As shown in Fig.1, the buses are dedicated between two processors, therefore they are interconnect directly) connecting said first video data processor and said second video data processor.

Regarding **Claim 19**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 18). In addition, Hashimoto discloses wherein said first video data processor has an output for outputting said second signal (8-bit bus for motion vectors and 8-bit bus to provide for input to input buffer 28, col.5, line 54-58) to said data interconnect.

Regarding **Claim 20**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 18). In addition, Hashimoto discloses wherein said second video data processor has an input (input to input buffer 28) for receiving said parts of said second signal from said data interconnect.

Regarding **Claim 21**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 20). In addition, Hashimoto discloses wherein said connection comprises a bus (8-bit bus for motion vectors and 8-bit bus to provide for input to input buffer 28, col.5, line 54-58) connecting said first and second video data processors and further comprising a memory device (input to input buffer 28, col.5, line 54-58), said memory device being connected to said bus wherein said second video data processor receives part of said parts of said second signal from said data interconnect (bus is also data interconnect) and part of said parts of said second signal from said bus.

Regarding **Claim 22**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses wherein said first signal is at least one of a MPEG2 encoded video stream (MPEG, col.4, line 6); a H. 263 encoded video stream; a RealVideo9 encoded video stream; a Windows media player encoded video stream; a H. 264 encoded video stream.

Regarding **Claim 27**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses An integrated circuit (first and second semiconductor substrates 12 and 14, Fig.1) comprising a circuit.

Regarding **Claim 31**, the claim is a method claim corresponding to the apparatus claim 1. Therefore, it is rejected for the same reason as claim 1.

Regarding **Claim 32**, the claim is a method claim corresponding to the apparatus claim 2. Therefore, it is rejected for the same reason as claim 2.

Regarding **Claim 33**, the claim is a method claim corresponding to the apparatus claim 3. Therefore, it is rejected for the same reason as claim 3.

Regarding **Claim 34**, the claim is a method claim corresponding to the apparatus claim 4. Therefore, it is rejected for the same reason as claim 4.

Regarding **Claim 35**, the claim is a method claim corresponding to the apparatus claim 5. Therefore, it is rejected for the same reason as claim 5.

Regarding **Claim 36**, the claim is a method claim corresponding to the apparatus claim 6. Therefore, it is rejected for the same reason as claim 6.

Regarding **Claim 37**, the claim is a method claim corresponding to the apparatus claim 7. Therefore, it is rejected for the same reason as claim 7.

Regarding **Claim 38**, the claim is a method claim corresponding to the apparatus claim 8. Therefore, it is rejected for the same reason as claim 8.

Regarding **Claim 39**, the claim is a method claim corresponding to the apparatus claim 9. Therefore, it is rejected for the same reason as claim 9.

Regarding **Claim 40**, the claim is a method claim corresponding to the apparatus claim 10. Therefore, it is rejected for the same reason as claim 10.

Regarding **Claim 41**, the claim is a method claim corresponding to the apparatus claim 11. Therefore, it is rejected for the same reason as claim 11.

Regarding **Claim 43**, the claim is a method claim corresponding to the apparatus claim 16. Therefore, it is rejected for the same reason as claim 16.

Regarding **Claim 44**, the claim is a method claim corresponding to the apparatus claim 18. Therefore, it is rejected for the same reason as claim 18.

Regarding **Claim 45**, the claim is a method claim corresponding to the apparatus claim 21. Therefore, it is rejected for the same reason as claim 21.

Regarding **Claim 49**, the claim is a computer readable storage device claim corresponding to the apparatus claim 1. Therefore, it is rejected for the same reason as claim 1.

Regarding **Claim 51**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses An MPEG decoder (decoding a MPEG data stream, col.4, line 4-6) comprising a circuit as claimed in claim 1.

Regarding **Claim 53**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 5). In addition, Hashimoto discloses wherein said first video data processor (first semiconductor substrate 12, Fig.1) is arranged to combine said spatial domain transformed (output of IDCT 24, Fig.1) first part (Input to Dequantization

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(22, Fig.1) of said first signal with said second part (Motion Vector, Fig.1) of said first signal.

Regarding **Claim 54**, the claim is a method claim corresponding to the apparatus claim 53. Therefore, it is rejected for the same reason as claim 53.

11. **Claims 12-13, and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto, in view of Ryan, further in view of Gomila (US 2003/0,206,664) (hereafter referenced as Gomila).

Regarding **claim 12**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 11). However Hashimoto and Ryan fail to disclose wherein said second video data processor is arranged to filter at least one of said at least one part of said second signal and said third signal.

In the analogous field of endeavor, Gomila discloses Deblocking Filter Conditioned on Pixel Brightness. Specifically Gomila discloses deblocking *filtering* of reconstructed signal (*said third signal*) (Deblocking Filter 240, Fig.2), in order to reduce blockiness artifact (paragraph 4).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Hashimoto and Ryan by specially incorporating deblocking filter in the second video data processor, in order to reduce blockiness artifact. The Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, further incorporating the Gomila deblocking filter in the second semiconductor substrate, has all the features of claim 12.

Regarding **claim 13**, The Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, further incorporating the Gomila deblocking filter in the second semiconductor substrate, as applied to claim 12, discloses wherein said filter comprises at least one of a de-ringing filter and a deblocking filter) (Gomila: Deblocking Filter 240, Fig.2).

Regarding **Claim 42**, the claim is a method claim corresponding to the apparatus claim 13. Therefore, it is rejected for the same reason as claim 13.

12. **Claim 23, 30, 50, and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ryan, and further in view of official notice.

Regarding **Claim 23**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). In addition, Hashimoto discloses wherein said second signal comprises at least one of: buffer base address word; picture level parameter header word; macro-block header word; slice parameter word; motion vector horizontal luma word (motion vector, Fig.1, and it was well known that motion vector consist of a luma horizontal and vertical components); motion vector vertical luma word (motion vector, Fig.1, and it was well known that motion vector consist of a luma horizontal and vertical components); motion vector horizontal chroma word ; motion vector vertical chroma word; pixel data reference word and pixel data residual word (IDCT output, Fig.1).

Regarding **claim 30**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). However Hashimoto fails to disclose wherein said second video data processor comprises a programmable processor.

However, it was well known in the art that the functions of second video processor is performed by programmable processor such as DSP (digital signal processor), in order to have a flexibility of programming.

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Hashimoto by specially providing DSP to the second video processor, in order to have a flexibility of programming. The Hashimoto video data processing architecture, incorporating DSP to the second video processor, has all the features of claim 30.

Regarding **claim 50**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). However Hashimoto fails to disclose A Digital Versatile Disc device comprising a circuit as claimed in claim 1.

However, it was well known in the art that DVD is storing MPEG encoded bitstream. Therefore, it requires MPEG decoder and the Hashimoto MPEG video decoder architecture is obvious to try to use, in order to play DVD movie.

Regarding **claim 52**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). However Hashimoto fails to disclose A Digital Video Broadcasting device comprising a circuit as claimed in claim 1.

However, it was well known in the art that DVB broadcasting is using MPEG standard bitstream. Therefore, DVB receiver requires MPEG decoder and the

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Hashimoto MPEG video decoder architecture is obvious to try to use, in order to play the video transmitted by DVB broadcasting.

13. **Claims 24-26, and 46-47** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ryan, and further in view of Wu (US 6,415,345) (hereafter referenced as Wu).

Regarding **claim 24**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 11). However Hashimoto and Ryan fail to disclose wherein said first video data processor comprises a data packer.

In the analogous field of endeavor, Wu discloses Bus Mastering Interface Control System for Transferring Multistream Data Over a Host Bus. Specifically Wu discloses data packer (122 at Fig.1) with a host bus (108, Fig.1), in order to pack valid data in fixed sized unit to form a packet (col.3, line 47-50).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Hashimoto and Ryan by specifically incorporating data packer in the first video data processor with a host bus between first and second video data processors, in order to pack valid data in fixed sized unit to form a packet. The Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, further incorporating the Wu data packer in the first video data processor with a host bus, has all the features of claim 24.

Regarding **claim 25**, the claimed invention is same as claim 24 except that data packer is in the second video processor instead of first. Two claimed inventions are equivalent and one is an obvious variation of the other. And therefore, it is obvious over Hashimoto in view of Wu.

Regarding **claim 26**, the Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, further incorporating the Wu data packer in the first video data processor with a host bus, as applied to claim 24, discloses wherein said data packer comprises: an input (Wu: input to bus master FIFO controller 124, Fig.1), said input being arranged to receive said second signal (Hashimoto: motion vector and IDCT output, Fig.1), said second signal comprising data words (Hashimoto: motion vectors and IDCT output); means for ordering said data words (Wu: pack valid data in fixed sized unit to form a packet, col.3, line 47-50); and an output (Wu: output to host bus 108, Fig.1), said output being arranged to transmit data packets comprising ordered data words.

Regarding **Claim 46**, the claim is a method claim corresponding to the apparatus claim 24. Therefore, it is rejected for the same reason as claim 24.

Regarding **Claim 47**, the claim is a method claim corresponding to the apparatus claim 26. Therefore, it is rejected for the same reason as claim 26.

14. **Claims 28-29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Ryan, and further in view of Trivedi (US 6,573,846) (hereafter referenced as Trivedi).

Regarding **claim 28**, Hashimoto and Ryan disclose everything claimed as applied above (see claim 1). However Hashimoto and Ryan fail to disclose wherein said first video data processor comprises a very long instruction word processor.

In the analogous field of endeavor, Trivedi discloses Method and Apparatus for Variable Length Decoding and Encoding of Video Stream. Specifically Wu discloses wherein said first video data processor comprises a very long instruction word processor (Media Processor using very long instruction word (VLIW), Fig.5A) for decoding MPEG bitstream such VLD (Variable length decoding) (8303, Fig.63) and IDCT (8304 at Fig.63), in order to issue the instructions to different functional units in the media processor in the same clock cycle (col.2, line 17-24).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Hashimoto and Ryan by specifically providing VLIW processing to the first video processor, in order to issue the instructions to different functional units in the media processor in the same clock cycle. The Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, further incorporating the Trivedi VLIW processing architecture to the first video processor, has all the features of claim 28.

Regarding **claim 29**, the Hashimoto video data processing architecture, incorporating the Ryan picture level parsing into the Hashimoto first semiconductor substrate, further incorporating the Trivedi VLIW processing architecture to the first video processor, as applied to claim 28, discloses wherein said very long instruction word processor is adapted to process said first signal further (programmed by instructions) dependent on a set of instructions stored in a memory (cache 1504 and host memory 1506, Fig.5A) .

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE-YONG KIM whose telephone number is (571)270-3669. The examiner can normally be reached on Monday-Thursday, 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on 571-272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HEE-YONG KIM/
Examiner, Art Unit 2482

/Christopher Kelley/
Supervisory Patent Examiner, Art
Unit 2424